Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

GEOGRAPHICAL RECORD

AMERICAN GEOGRAPHICAL SOCIETY

Meetings of April. The two last meetings of the American Geographical Society for the season were held on April 8 and April 22 at the Engineering Societies' Building, 29 West Thirty-ninth Street. At both President Greenough presided. At the intermonthly meeting on April 8 Mr. Jerome Davis, recently returned from three years of war work in Russia, gave a lecture on ''The Truth about Russia.'' At the monthly meeting on April 22 Mr. F. W. Hodge, lately of the Bureau of American Ethnology and now of the Museum of the American Indian, Heye Foundation, addressed the Society on ''The Pueblo Indians of the Southwest.'' Prior to the address President Greenough submitted the names of 14 candidates for Fellowship, each of whom had been approved by the Council, and they were confirmed as Fellows of the Society.

NORTH AMERICA

Climate and Crops in the United States. The recent publication of the ''Geography of the World's Agriculture,'' by V. C. Finch and O. E. Baker (Office of Farm Management, U. S. Dept. of Agric., Washington, 1917; see the review in *Journ. of Geogr.*, Jan. 1919, pp. 39-40), and of the forthcoming sections of the new ''Atlas of American Agriculture'' (for sections hitherto published see *Geogr. Rev.*, Vol. 5, 1918, pp. 325-326, and the article on frost above and the note on cotton below, in this issue) will naturally lead to a revision and amplification of many of the current statements regarding the major geographic controls of crop distribution. The detailed discussion of the influence of the climatic factor upon crops is an especially noteworthy feature of these new publications and will help greatly towards a more thorough understanding of this important relation. Climate is but one of the many controls which determine the present geographical distribution of the staple crops, but it is fundamental.

A paper on ''The Larger Relations of Climate and Crops in the United States'' (*Quart. Journ. Royal Meteorol. Soc.*, Jan. 1919, pp. 1-18), by Professor R. DeC. Ward, gives a summary of the essential facts in these relations, as brought out in the recent publications by the Department of Agriculture. The purpose of the writer is to present a general broad survey, rather than a close study of the many details of the problem. Such details, as he points out, belong to the agricultural meteorologist, whose interest is in the more intricate controls which current and seasonal weather conditions exercise over the quality and the quantity of the crops, rather than to the climatologist or to the general student. As a ''frame-work'' into which these larger facts of climate and crop distribution, and of the various types of farming, may be fitted, Professor Ward adopts the scheme of agricultural provinces suggested in ''A Graphic Summary of American Agriculture'' (by Middleton Smith, O. E. Baker, and R. G. Hainsworth, *Yearbook of Dept. of Agric. for 1915,* Washington, 1916, pp. 329-403; map on p. 335). This is a convenient and logical classification and furnishes a simple and satisfactory working basis for the discussion. The scheme is based primarily upon the distribution of the principal crops and upon the types of farming. The country is divided into two major divisions, separated by the mean annual rainfall line of 20 inches. The eastern half of the country has sufficient rain in normal years and produces annual summer crops cultivated by ordinary farming methods. The western half, with generally inadequate rainfall (except on the North Pacific coast and in parts of California and of the northern Rocky Mountain district), contains only limited areas where ordinary farming of the eastern type may be practiced. In the eastern half, latitude, i. e. temperature, and not altitude, is the dominant control. Hence the agricultural provinces have a general east-and-west extension. In the West, with its high mountain ranges extending in a general north-and-south direction, the agricultural provinces also extend roughly north and south. Rainfall is here the critical factor, and the rainfall is largely determined by the topography. A detailed map of crop distribution in the West is ''patchy,'' the patches usually corresponding to districts of local irrigation.

The fundamental climatic controls are considered in connection with corn; wheat; cotton; oats, barley, and rye; hay, forage, and pasture; tobacco; potatoes and other vegetables; fruits, livestock, and dairying. There are also sections on dry farming, irrigation, and forests, and a concluding brief discussion of crops and business. In connection with the latter subject, Professor Eduard Brückner's striking statement regarding rainfall periodicity and immigration is quoted ("Memorial Vol. Transcontinental Excursion of 1912," Amer. Geogr. Soc., New York, 1915, pp. 125-139). "The stream of immigrants to the United States ebbs and flows with the oscillations of climate, which gives it a rhythmical impulse. And not only is the immigration to the United States controlled by climatic oscillations, but also the settlement of the Far West." A good working bibliography is included in Professor Ward's paper.

Boulder Pavements on the Upper Mackenzie River. Certain physical peculiarities of the upper Mackenzie River are detailed by E. M. Kindle in "Notes on Sedimentation in the Mackenzie River Basin" (*Journ. of Geol.,* Vol. 26, 1918, pp. 341-360). Amongst these is the notable development of boulder pavements. These marvelous pavements, resembling cobblestone roadways, are described as stretching along the river for miles without interruption. They form gently sloping concave banks, in places extending from below low water to a height of 25 feet above it. Their unusual scale is attributable to the abundance of material and the powerful action of the river ice during the spring break-up. The channels of the Slave, the lower Peace and Athabaska Rivers are largely cut in silt deposits, and here boulder pavements are unknown. The channel of the Mackenzie, on the contrary, is cut for the most part in glacial till rich in boulders that the grinding and sliding action of the ice builds into pavements. Of the great destructive and constructive action of the ice in the Mackenzie there is everywhere abundant illustration. An appreciation of its force is gained from the statement that at the Ramparts—the gorge above Fort Good Hope, where the river is narrowed to 500 yards—the ice jam has been known to raise the river 100 feet. Most convincing is the graphic description of the break-up at the junction of the Liard and Mackenzie quoted by Kindle from R. G. McConnell (*Ann. Rept. Geol. Surv. of Canada,* Vol. 4 for 1888-1889, p. 87 D).

Connected with the boulder pavements is another feature wherein the upper Mackenzie contrasts with the streams of the system above Great Slave Lake. Where the Slave and lower Peace pursue a typically meandering course the Mackenzie is relatively direct, the boulder pavements affording an effective protection against excessive cutting at the river bends.

EUROPE

Proposed Trans-Pyrenees Railways. The long-cherished ambition of France and Spain for rail communication over the Pyrenees is gradually nearing realization. Conferences whose purpose is to promote the construction of a series of trans-Pyrenees railways, but whose periodical sessions had been interrupted since 1913, recently were held in San Sebastián, to renew arrangements for completing the work (see *Ibérica,* a weekly periodical published by the Observatorio del Ebro at Tortosa, March 23, 1918, pp. 184-190; November 9, 1918, p. 274; and November 16, 1918, p. 290).

Existing railways, one skirting the western end of the range and the other following close to the Mediterranean coast, have offered entirely inadequate transportation facilities for the greatly increased trade between the two countries in the last few years.

Three new lines are under construction. The easternmost of these will connect Barcelona and Toulouse directly by rail and will run from Ripoll on the Spanish side, up the Fraser, a western tributary of the Ter River, will cross the Col de Tosas to the upper Segre, continue via Puigcerdá, cross the Mediterranean-Atlantic divide at the Col de Puymorens, and descend to Ax-les-Thermes, whence a railroad is in operation to Foix. The second will ascend the Segre from Lerida to Balaguer, pass Tremp and Sort on the Noguera Pallaresa, tunneling under the Puerto del Salau to join the French section which is being built up the Salat from St. Girons. These two lines will put the provinces of Catalonia, with their increasingly important manufacturing centers, their productive vineyards, and their still undeveloped mineral riches, into far better land communications with southeastern France, to which a large part of their exports are sent, relieving, too, the congested port of Barcelona, whose harbor facilities have been greatly overtaxed by Catalonia's rapid industrial development in recent years. Another benefit that will accrue from these new rail connections will be the easier movement across the Pyrenees of the laborers from Spain who go in large numbers to the industrial establishments or, seasonally, to aid in the grape harvests of southern France.

The third line referred to will connect Zaragoza with Oloron, via Zuera, Jaca, and Bedous. From the railhead at Jaca it will ascend the Valley of Canfranc and cross the Pyrenees by the Somport Pass (Latin, Summus Portus), 5,355 feet above the sea, famous for the old Roman road which here traversed the range. Thence it descends the Vallé d'Aspe to Oloron. This line will be of double value, serving as a French outlet from the middle valley of the Ebro with its irrigated fruit lands, and, through the valley of the Jalón, offering one of the most practical routes between France and the highlands of Castile.

A fourth line is under consideration, which it is thought, may prove more suitable as a direct route from Madrid to Paris. This would go from Madrid to Siguenza running almost parallel with the present line to Zaragoza, cross the basin of the Duero to Soria, thence to Calahorra (possibly skirting the Sierra de Almuerzo to the eastward in order to avoid a 1,000 meter tunnel) and Pamplona, reaching, on the French side of the divide, the valley of the Aldudes by tunneling the summit called Urtiaga. From here the line would descend to Bayonne or Dax.

Maps in Clément Decomble's "Les Chemins de Fer Transpyréneens" (Paris, 1913) show how these several lines will connect with railways already constructed in both countries. In this volume may be found also a list of works referring to these Trans-Pyrenees railways and the diplomatic discussions that have centered about them.

AFRICA

An Ethnological Expedition to Uganda. In spite of the numerous works treating of Uganda and its people there is still a large field for careful ethnological studies among the aboriginal tribes of that region. Since this highland has long been the meeting place of Bantu, Sudanese, Nilotic, and Hamitic races, in their migratory movements, and as it still retains elements of almost every tribe in Africa, it offers an unsurpassed opportunity for conducting ethnological investigations: an opportunity, moreover, which is rapidly passing away, for the primitive culture is gradually being modified by contact with Europeans.

According to a recent announcement in *Man* (April, 1919, pp. 63-64), a scientific expedition is soon to be made into the territory lying west of the Victoria Nyanza. Rev. John Roscoe, for many years a missionary in Uganda and author of two standard works on the people of this region ("The Baganda," London, 1911, and "The Northern Bantu," London, 1915), will conduct the expedition. Its prime object is to study the various pastoral tribes who occupy the elevated grasslands between the Victoria Nyanza and the western Rift Valley, thus extending the investigations already carried on in northern Uganda by Roscoe, Hobley, and Cunningham and the similar work done in Ruanda (German East Africa) by Hans Meyer. These pastoral people, represented by such tribes as the Bahima and the Batusi in the Western Province and by the Baganda about Mengo near the northern end of Victoria Nyanza, subsist almost entirely on a milk diet, varied somewhat by flesh from their cattle. They despise agriculture and agriculturists. Life centers about the herds, which they keep in great numbers. These herds furnish (besides food) skins for the scanty clothing necessary; hides, which, stretched between posts, serve as beds; leather for sandals; thongs for a variety of purposes; objects for ceremonial usages; bones for implements; dung for fuel; and even the dowry with which a wife may be bought. The people are expert leather workers. Having little timber for building purposes they are adepts at weaving grass or reeds into mats, doors, walls, and fences.

The proposed expedition will probably spend two years in this "ranch land of the protectorate," entering the territory via the Mombasa railway and Lake Victoria, moving northward toward the Nile country, to return by way of Egypt. The cannibal tribes about Mt. Elgon may also be visited. Funds have been provided by Messrs. R. J. Mackie and Co., of Glasgow. A committee representing the Royal Society will have supervision of the work. The plan is largely due to the enthusiastic efforts of Sir James G. Frazer, who on other occasions has been a leading spirit in such studies.

ASIA

Variations in the Climate of Ancient Palestine. Professor J. W. Gregory, who has given considerable attention to the subject of climatic "changes," contributes to a recent number of the *Quarterly Journal of the Royal Meteorological Society* (Jan., 1919) a note on the much-debated question of changes of climate in Palestine.

Professor Gregory does not believe in cyclical variation with a period of a few centuries. His examination (see in general his paper "Is the Earth Drying Up?", *Geogr. Journ.*, Vol. 48, 1914, pp. 148-172 and 293-318) of the records of Palestine, Cyrenaica (see especially *Geogr. Journ.*, Vol. 47, 1916, pp. 321-345), and Greece led to the discovery of nothing definite regarding simultaneous climatic variations in ancient times around the eastern Mediterranean. The Cyrenaica records indicated that "any such variation as may have occurred was not sufficient to have affected materially the physical condition of the area or its fauna and flora.'' The meteorological interpretation of Biblical statements is difficult, and unreliable. It has been pointed out that Palestine was well watered in the eleventh century B. C., but Professor Gregory remarks that that century included David's famine. It has been suggested that the thirteenth century B. C. was dry. Yet the well-known incident of the heavy dews on and around Gideon's fleece, and the song of Deborah and Barak might be appealed to as evidence of moist conditions. After the Israelites' forty years in the wilderness the impression that Palestine was a well-watered land in the fifteenth century would be inevitable. In the troublous times of the Judges, the aridity would again be emphasized. ''Ruth's famine,'' Professor Gregory points out, ''was in the fourteenth century B. C.; Elijah's in the tenth, and Elisha's in the ninth, so there does not appear much room for any great variation in a cycle with a period of a few centuries.'' R. DEC. WARD

The Relation of Forests to Floods in China. China has long been called the land of floods. Destruction and starvation follow in their wake with almost yearly persistency. Only last year China experienced destructive floods in Hunan and a number of other provinces, where great sums of money were spent for relief. In 1911 the destructive Anhwei flood resulted in the organization of the China Famine Relief Committee. The Canton flood of 1915 gave rise to the establishment of the Bureau of Conservancy Works. Scores of societies have been started at different times to raise funds for flood sufferers. But little has yet been done to control or otherwise check their destructiveness.

D. Y. Lin, a former graduate of Yale University and at present the leading figure in China in forest conservation, has recently discussed the problems of China's floods in an interesting article in the *Far Eastern Review* (The Relation of Forests to Floods, December, 1918, pp. 481-485). He first calls attention to the enormous economic and human loss from floods in China and in a most intelligent and conservative manner discusses the influence of the forest on flood control. China is giving more and more attention to her imperative forest problems, and the outlook is that forest planting will soon take a prominent place in making the present waste lands of China of economic value to the country, that they may, in combination with reservoirs, protect against future floods. J. W. TOUMEY

ECONOMIC GEOGRAPHY

The Climatology of the Cotton Plant. The recent publication of the Section on Cotton of the new ''Atlas of American Agriculture'' (Part V, Sec. A, Office of Farm Management, U. S. Dept. of Agric., Washington, D. C., issued Dec. 15, 1918) makes it possible to understand, more clearly and more thoroughly than heretofore, the exact conditions of weather and of climate in which the cotton of the United States is successfully cultivated, as well as the general climatic controls in other countries where cotton is an important crop. Most of the cotton raised in the Punjab or in Sind is grown under irrigation, but nearly all the crop of central India, Bombay, Hyderabad, and Madras is ''rain'' cotton, i.e. it is planted during or at the end of the rainy season and picked in late autumn, winter, or early spring, i.e. in the almost rainless season. Egyptian cotton is grown under irrigation. The land is usually irrigated before being plowed and then again at intervals of about a month, or less, until the Nile flood arrives in midsummer. During the highwater period the canals are drained every other week, so that the soil may not become water-logged. The cotton crop of Russia (Turkestan and Transcaucasia) grows in an arid continental climate, with hot summers and cool winters and an annual rainfall, where most of the crop is raised, of 5–15 inches. Irrigation is necessary. In Peru the area available for cotton cultivation is practically limited to the narrow coastal valleys which can be irrigated. A comparison of the summer temperatures in various cotton regions of the northern hemisphere shows great similarity, the mean July temperatures being between 80° and 90° F. (Fig. 11 of the Atlas). The rainfall, although it varies greatly in amount at other seasons, is similar in having 3 inches or less in October. Heavy autumn rains interfere with picking and result in injury to the quality of the lint.

In the United States the northern boundary of the cotton belt has a mean summer temperature of 77° (Fig. 28). Summer temperatures of 80°–83° are found over the southern portions of the belt and of 95° in the Imperial Valley of California. Very little cotton is raised where the average length of the growing season (period between first and last frosts) is less than 200 days. A frostless season of 260 days, or more, occurs over the southern portion of the cotton belt. The western limit of the cotton belt is about on the mean annual isohyetal line of 23 inches, the mean annual precipitation over the belt as a whole ranging from 23 inches (western Oklahoma and Texas) to 55–60 inches (Fig. 19). Summer brings the most rain (Fig. 17) and autumn the least (Fig. 18). The important cotton regions practically all have less than 10 inches in autumn.

Weather conditions, as well as climate, are critical for successful commercial cotton production. A mild spring marked by light and frequent showers; a moderately moist summer, with warm nights as well as warm days; a dry, cool, and prolonged autumn are most favorable. Springs which are too cool retard growth, and those which are too rainy tend to rot the seed or to develop surface rather than deep roots. Rainy weather in May and June also interferes with cultivation. Spring and early summer droughts, on the other hand, frequently kill the young seedlings. A cool, wet May and June, and a hot, dry July and August are the worst conditions. Thundershower type rains, with a succession of several bright and warm days between rains, are ideal. Rainy weather in late August is undesirable, because it retards maturity, interferes with picking, and damages or discolors the exposed fiber, but moderate rain in early September is beneficial in favoring the production of a ''top crop'' of bolls which mature late. Early autumn frost is injurious, killing the ''top crop'' or causing a premature opening of the bolls. This often seriously reduces the yield. The seasonal migration, from south to north, of cotton planting is at the rate of 10 to 20 miles a day. It begins in the south about March 20 and in the north about April 20 and usually takes two to three weeks. Picking begins about August 10 in the southern part of the belt and about September 10 in the northern and is usually completed about December 1 in southern districts and from December 20 to January 1 in the north.

Sea Island cotton needs more atmospheric humidity than does upland cotton. Egyptian cotton, now grown in the Salt River Valley of Arizona, in the Yuma district, and in the Palo Verde Valley on the California side of the Colorado River, needs a hot and dry climate like that of Egypt and is grown entirely under irrigation.

R. DeC. Ward